

WEATHER SERVICE

INSTRUMENT GROUND SCHOOL



FRONTAL SYSTEMS

TERMINOLOGY

- **AIR MASS - A BODY OF AIR WITH SIMILAR HORIZONTAL TEMPERATURE AND MOISTURE CHARACTERISTICS**

CONTINENTAL POLAR - COLD & DRY

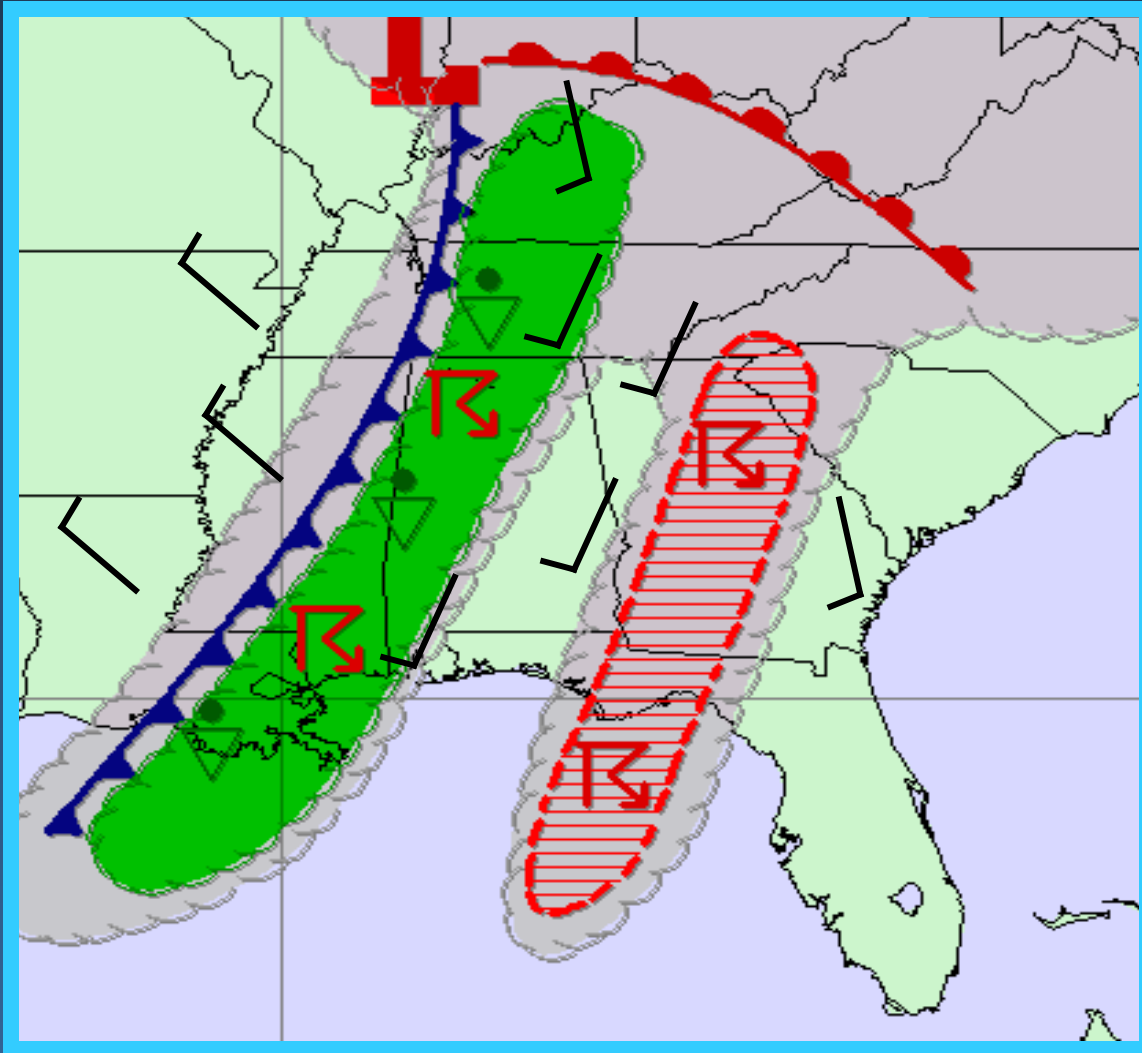
CONTINENTAL TROPICAL - WARM & DRY

MARITIME TROPICAL - WARM & MOIST

MARITIME POLAR - COLD & MOIST

- **FRONT - A BOUNDARY BETWEEN TWO AIR MASSES**
- **SQUALL LINE - A LINE OF INTENSE THUNDERSTORMS WHICH MAY DEVELOP 50-200 MILES AHEAD OF RAPIDLY ADVANCING COLD FRONT**

FAST MOVING COLD FRONT

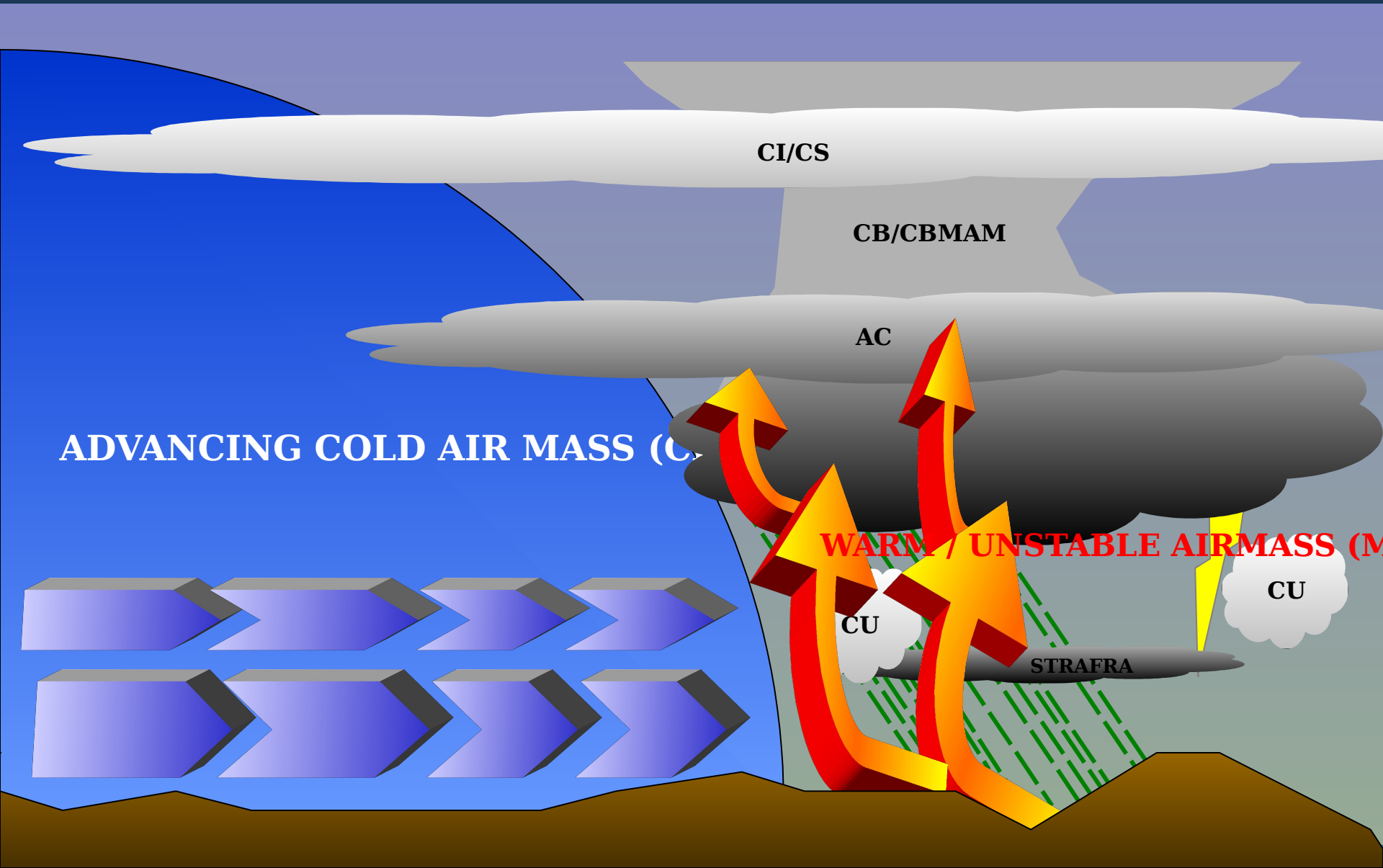


CHARACTERISTICS

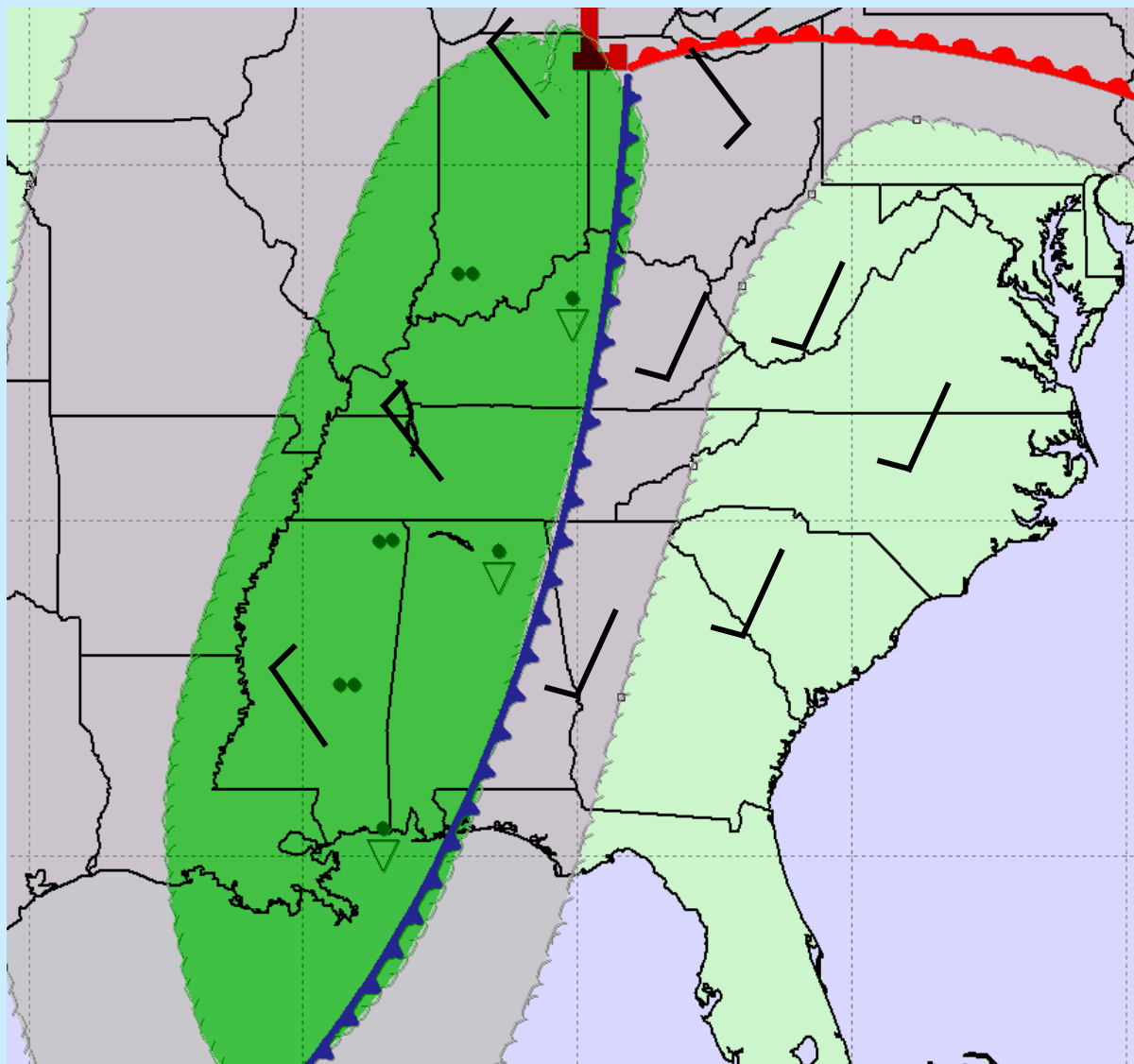
- WEATHER AT AND AHEAD OF FRONT
- AVERAGE SPEED 25-30 KNOTS
- ACCOMPANIED BY A NARROW BAND OF WX
- SQUALL LINE MAY FORM 50 TO 200 MILES AHEAD OF FRONT
- RAPID CLEARING OCCURS AFTER FRONTAL PASSAGE
- ASSOCIATED WITH CUMULIFORM TYPE CLOUDINESS AND SHOWERY PRECIPITATION
- GENERALLY CONVECTIVE

COLD FRONT

(FAST MOVING/IN -ACTIVE)



SLOW MOVING COLD FRONT

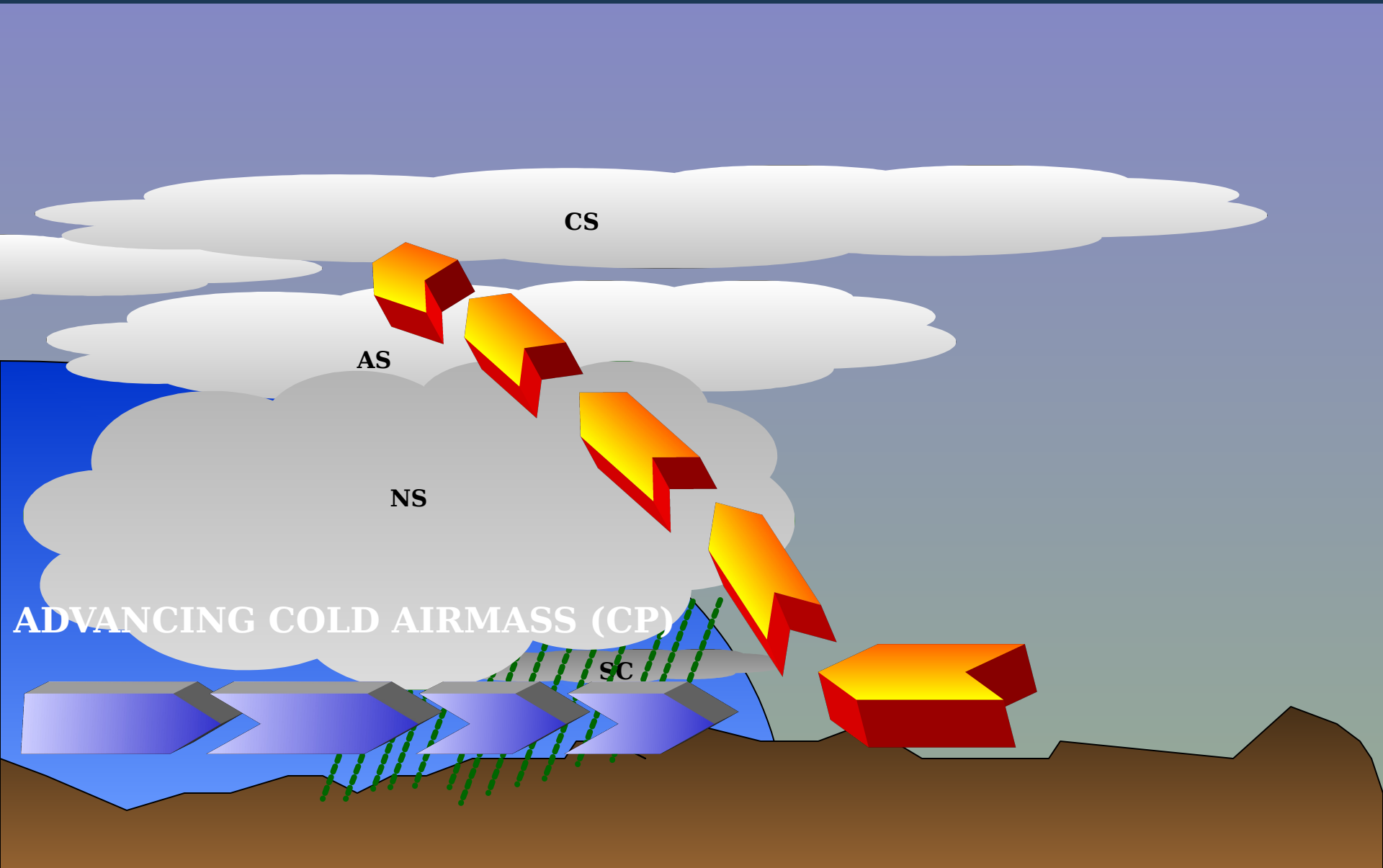


CHARACTERISTICS

- WEATHER AT AND BEHIND
- AVERAGE SPEED 15-20 KTS
- WIDE BAND OF WEATHER AND CLOUDINESS
- UPPER LEVEL WINDS ARE PARALLEL
- DEW POINT SLOWLY DECREASES AFTER FROPA
- SHALLOW FRONTAL SLOPE
- STRATIFORM

COLD FRONT

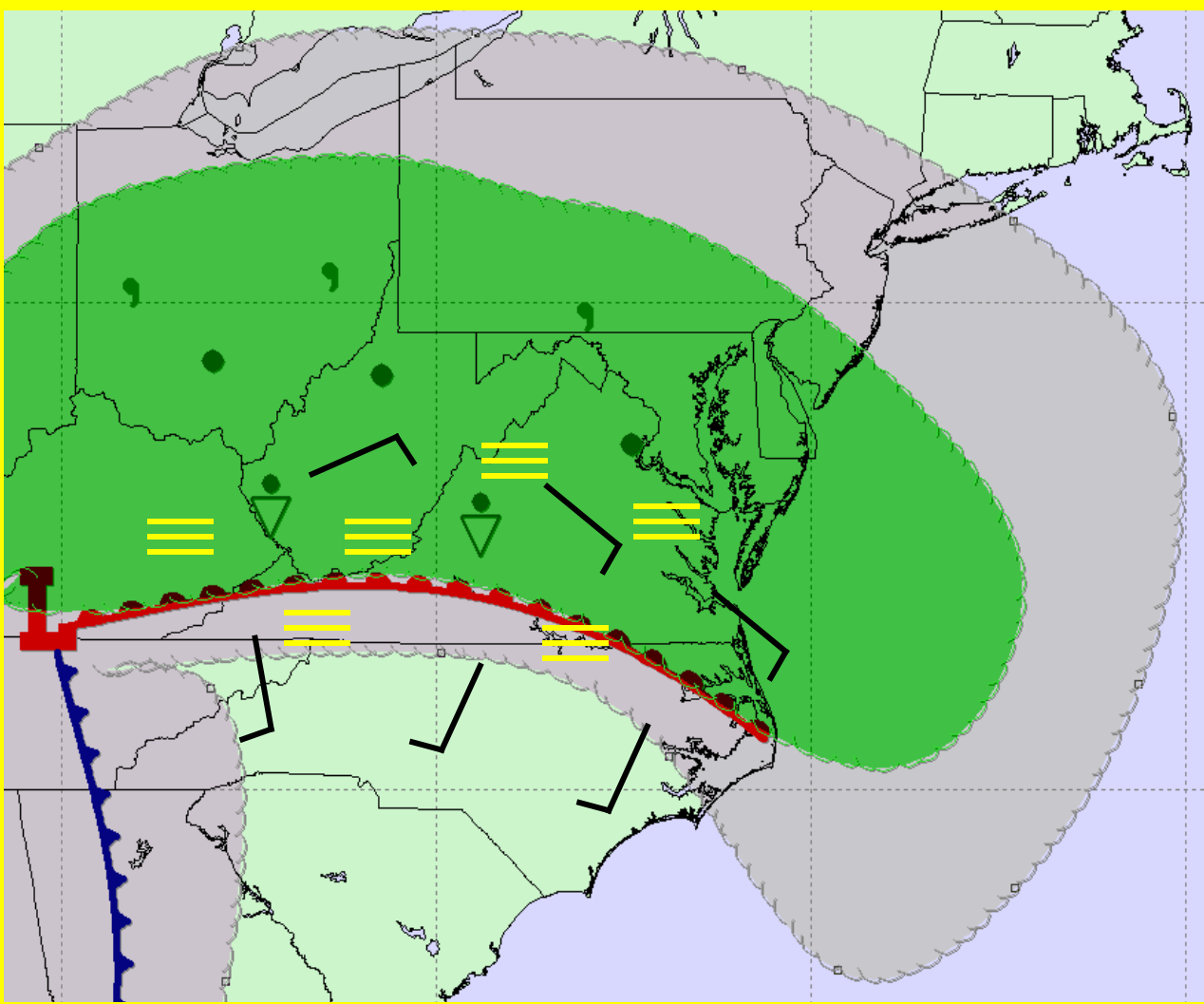
(SLOW MOVING/ACTIVE)



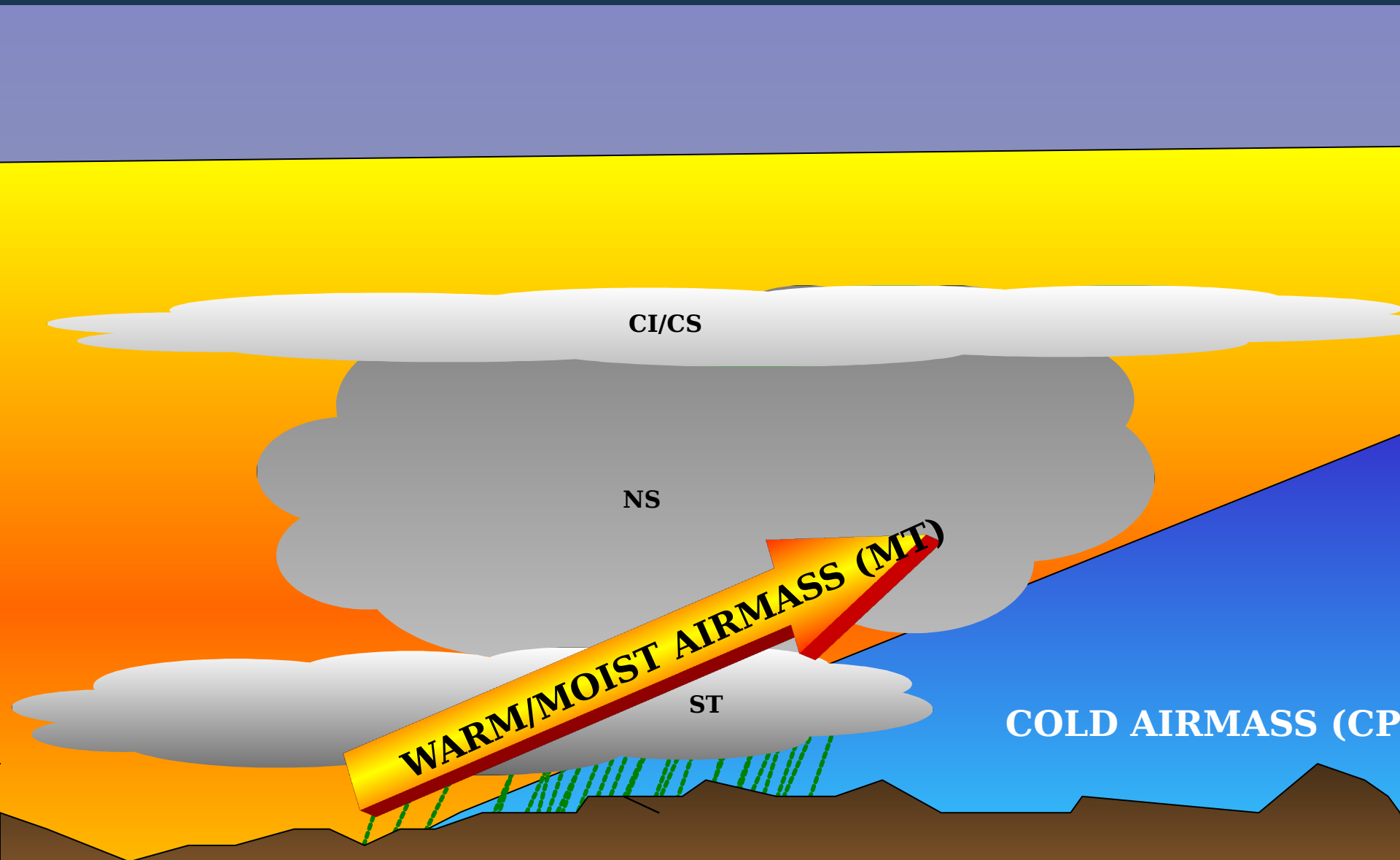
WARM FRONTS

CHARACTERISTICS

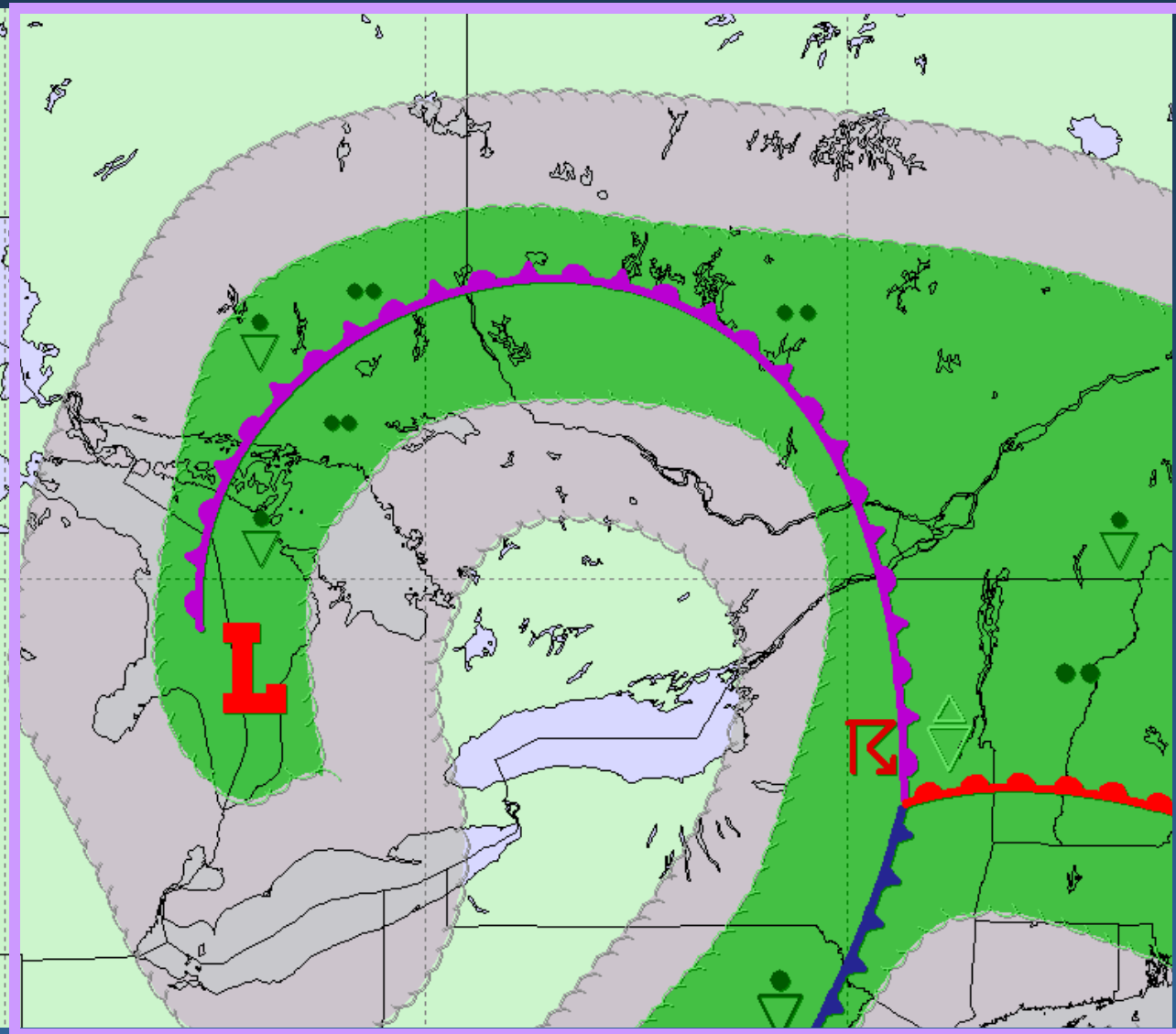
- CLOUDINESS
GENERALLY
EXTENDS 400-600 MILES
AHEAD OF SURFACE
FRONT
- “OVERRUNNING” IS
CAUSE
OF WEATHER & CLOUDS
- STRATIFORM
CLOUDINESS
WITH WIDESPREAD
RAIN
AND DRIZZLE
(ISOLATED SHRA
POSSIBLE)
- DEW POINTS INCREASE
WITH FROPA



WARM FRONT



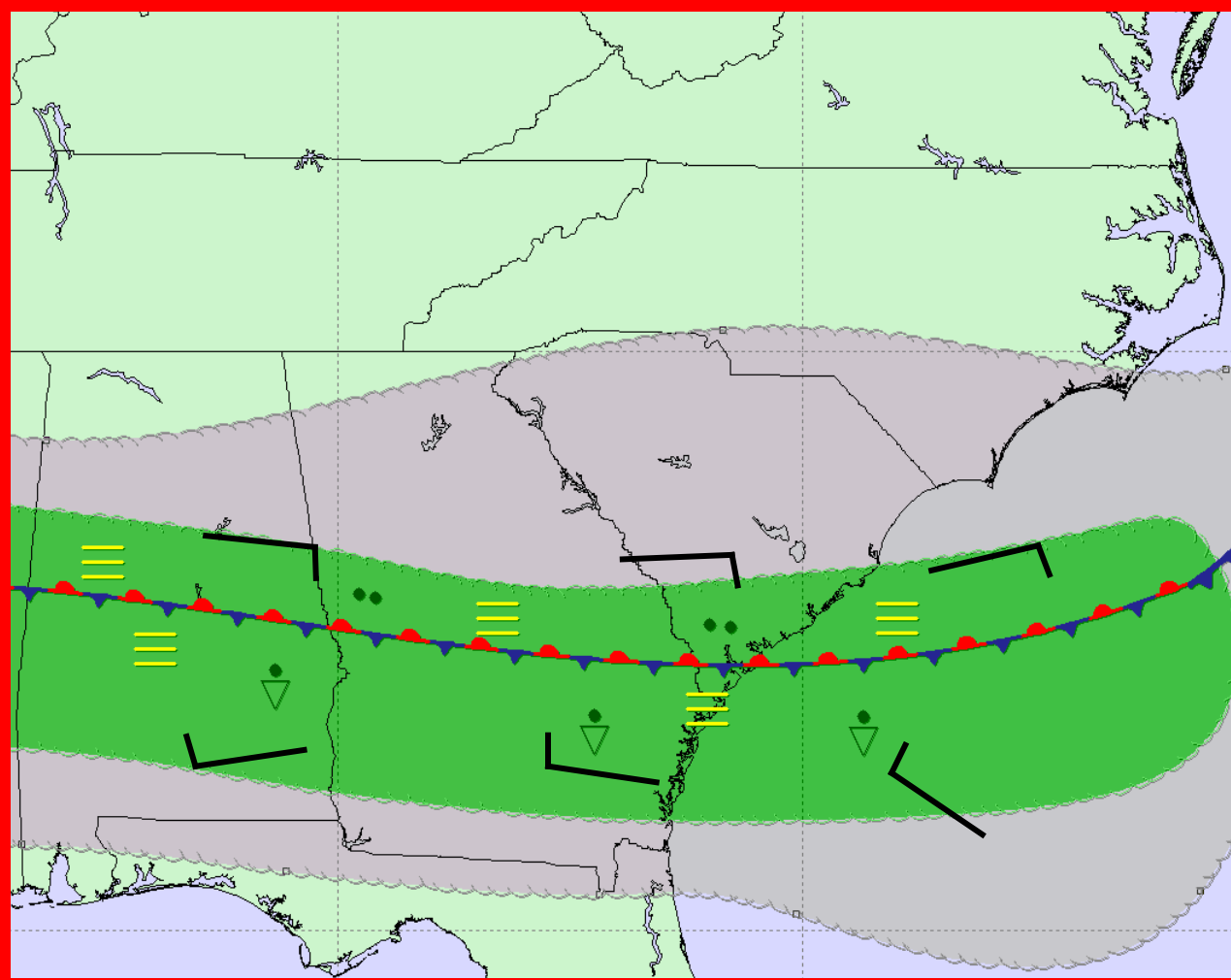
OCCLUDED FRONTS



CHARACTERISTICS

- ASSOCIATED WITH MATURE LOW PRESSURE SYSTEM
- COMMONLY OCCUR ON THE COAST OF CONTINENTS
- CYCLOGENESIS FREQUENTLY TAKES PLACE AT APEX (TRIPLE POINT LOW)
- MOST VIOLENT WEATHER OCCURS AT THE TRIPLE POINT

STATIONARY FRONTS



CHARACTERISTICS

- EXHIBITS LITTLE TO NO MOVEMENT (USUALLY 5 KNOTS OR LESS)
- STRATIFORM CLOUDINESS AND RAIN ON COLD AIR SIDE
- CUMULIFORM CLOUDINESS AND SHOWERS ON WARM AIR SIDE
- SURFACE WINDS PARALLEL TO FRONTAL BOUNDARY
- MAY AFFECT A REGION FOR 48-72 HOURS
- COMMONLY OCCURS WHEN CP AIRMASS BECOMES MOTIFIED

QUESTIONS ??